

polarization to a second wave guide configured for a second polarization through a coupler configured for a third polarization..." Thus the claim text "the relative polarization difference between the first wave guide and the coupler" read in light of the preamble relates to the difference between the "first polarization" and the "third polarization" and the claim text "the relative polarization difference between the coupler and the second wave guide" also read in light of the preamble relates to there difference between the "third polarization" and the "second polarization." For example a relative polarization difference between a vertical polarization and a horizontal polarization (both types of polarization commonly known in the art) is 90 degrees or $\frac{\pi}{2}$ radians. While the term "difference between" has not be specifically recited in the specification, it has a well understood meaning in common language and mathematics and should be attributed the same. This explanation should obviate the Office Action's rejection with regard to claim 63 and thus 64-67.

The Office Action has repeated the art rejections verbatim from the previous Office Action. The Applicants are remised that their previous arguments were not persuasive, and are confident that a more detailed explanation of the claims and the cited prior art will disavow the examiner of this opinion.

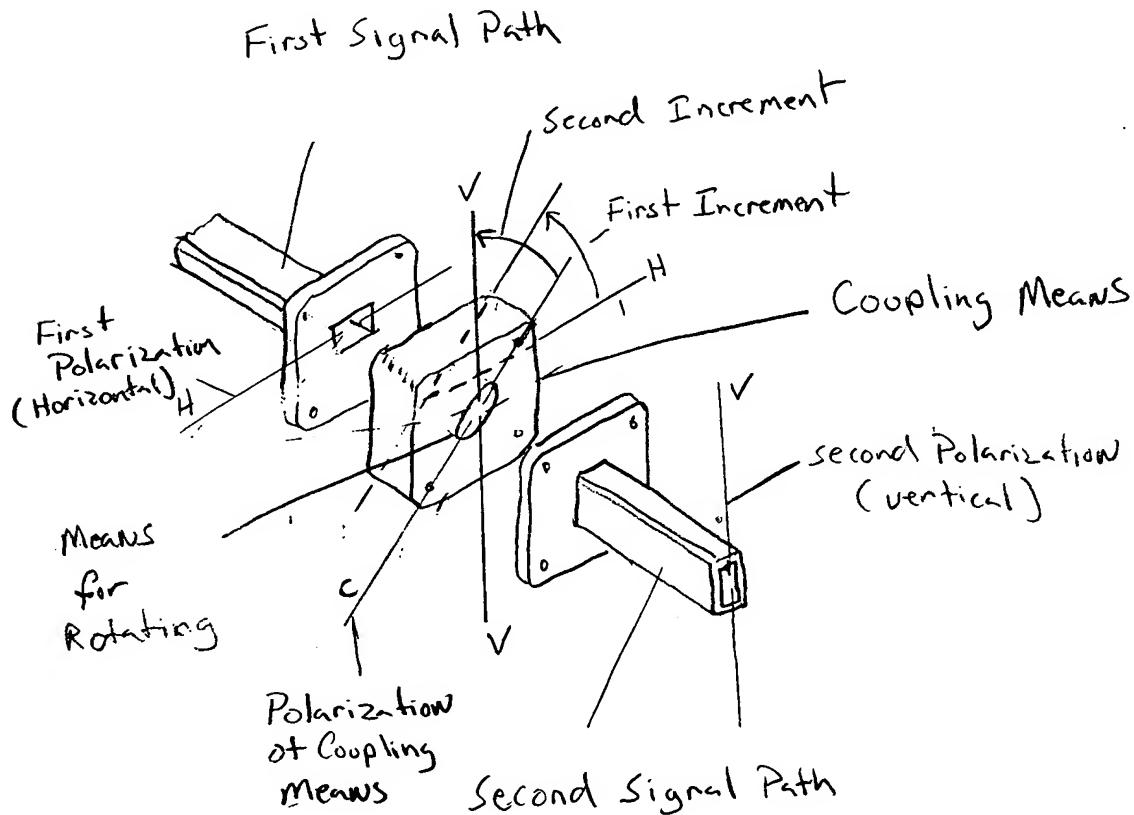
Rejection under 35 U.S.C. §102(a)

Independent claim 40 recites *inter alia* " A system for coupling a first signal path to a second signal path so as to allow a signal propagating in said first path with a first polarization to propagate in said second paths with a second polarization, comprising:

means for coupling said first and second paths including means for rotating the polarization of the signal in a plurality of increments from said first polarization to said second

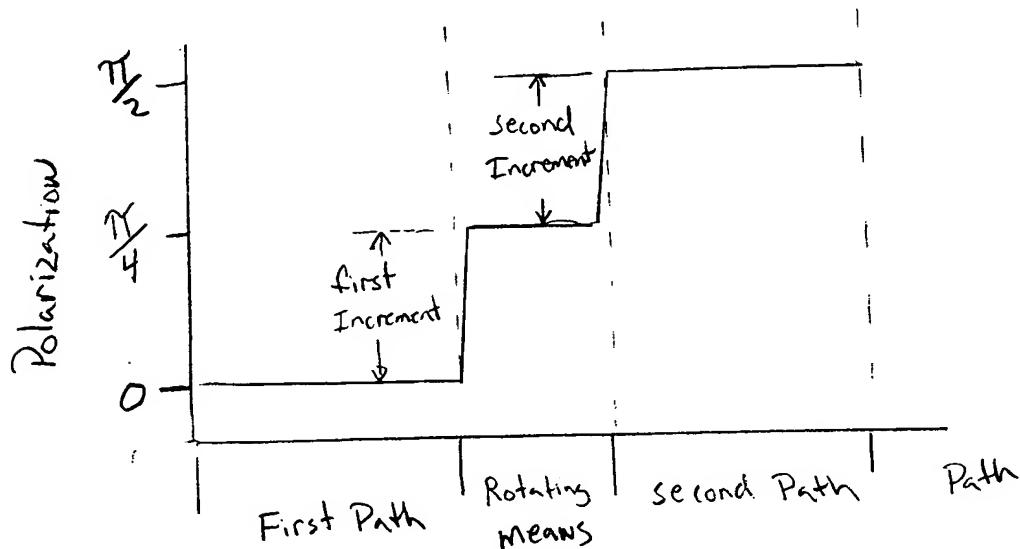
polarization." From the Office Action it is apparent that the Examiner did not understand the feature of the claim.

The Applicants provide the following labeled drawing to assist the examiner, the drawing relates only to an embodiment of claim 40 and should not be construed to limit the scope thereof.



As shown above the first signal path with a first polarization H (horizontal in the drawing), is coupled to a second signal path with a second polarization V (vertical in the drawing) by a coupling means with a Polarization of C (45° in the drawing). The signal travels thru the first path with a horizontal polarization, the polarization of the signal is rotated by the rotating means to a polarization of 45° from horizontal, this rotation is a first increment. The signal with a polarization of 45° travels through the coupling means to the second signal path

where the polarization is rotated by the rotating means another increment of 45° such that the polarization of the signal is now 90° or vertical which corresponds to the polarization of the second signal path. This incremental rotation of the signals polarization is shown below in a Signal polarization chart.

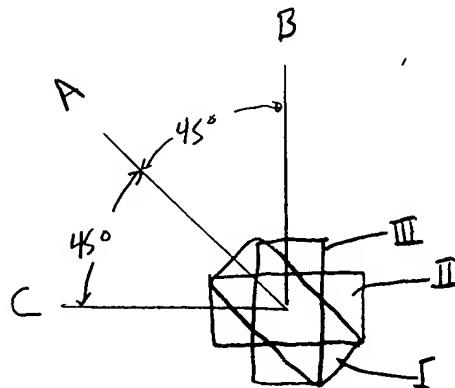


The rotation of polarization of the signal traveling from the first signal path to a second signal path in increments is clearly demonstrated.

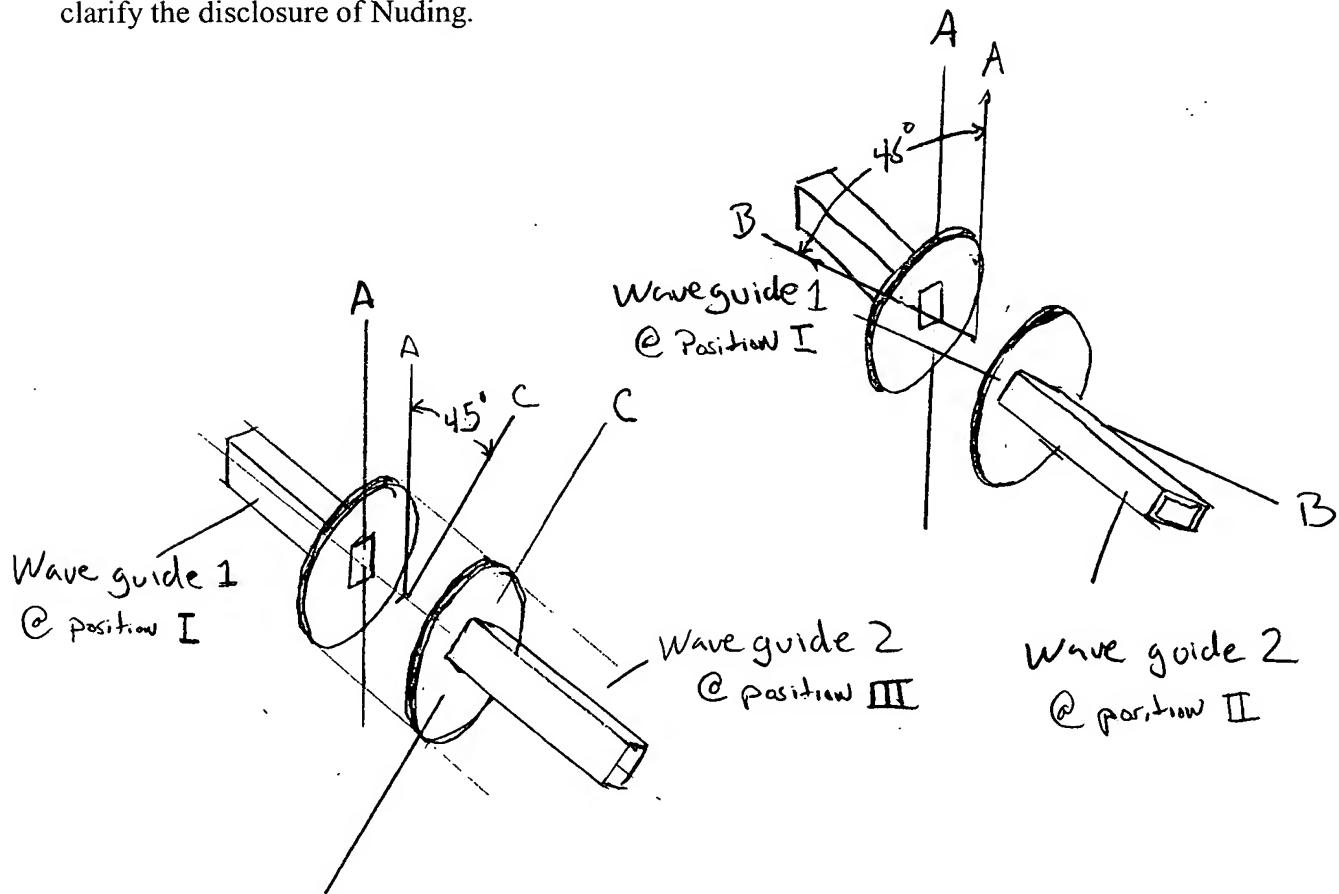
In contrast to claim 40, Nuding rotates the polarization of the signal in a single increment. For example as shown in Figure 1 and 2b, the polarization goes from the polarization of wave guide 1 to the polarization of wave guide 2 in one step. The flanges of Nuding (7,8) reflect respectively the polarization of their associated wave guides. The operation of Nuding is again provided below by the Applicant to show the distinction between claim 40 and what Nuding actually discloses.

Figure 1 reproduced below shows" the waveguide at position I may here by twisted or

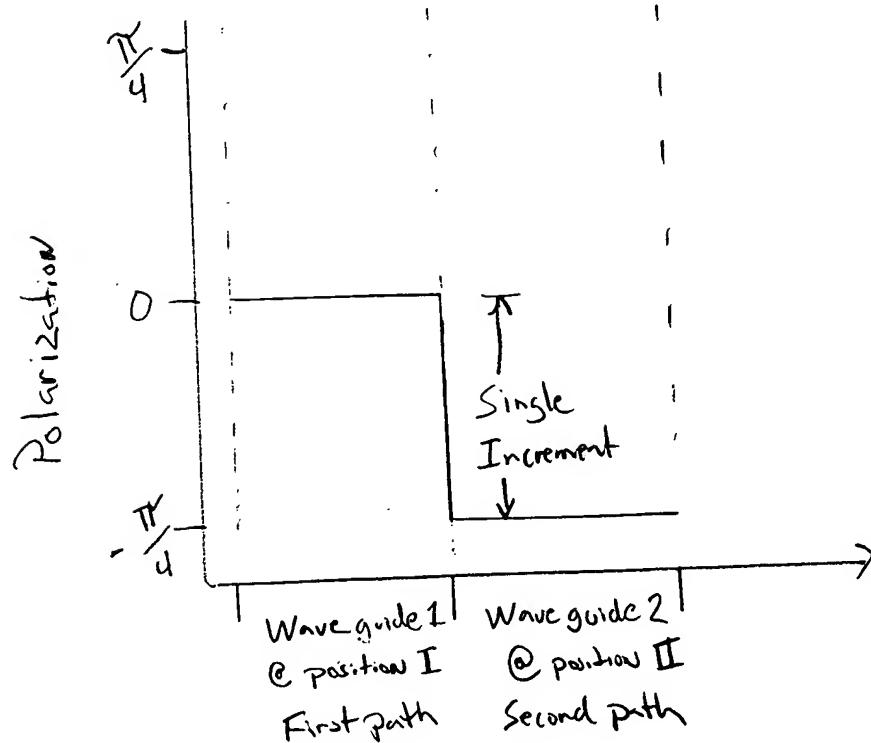
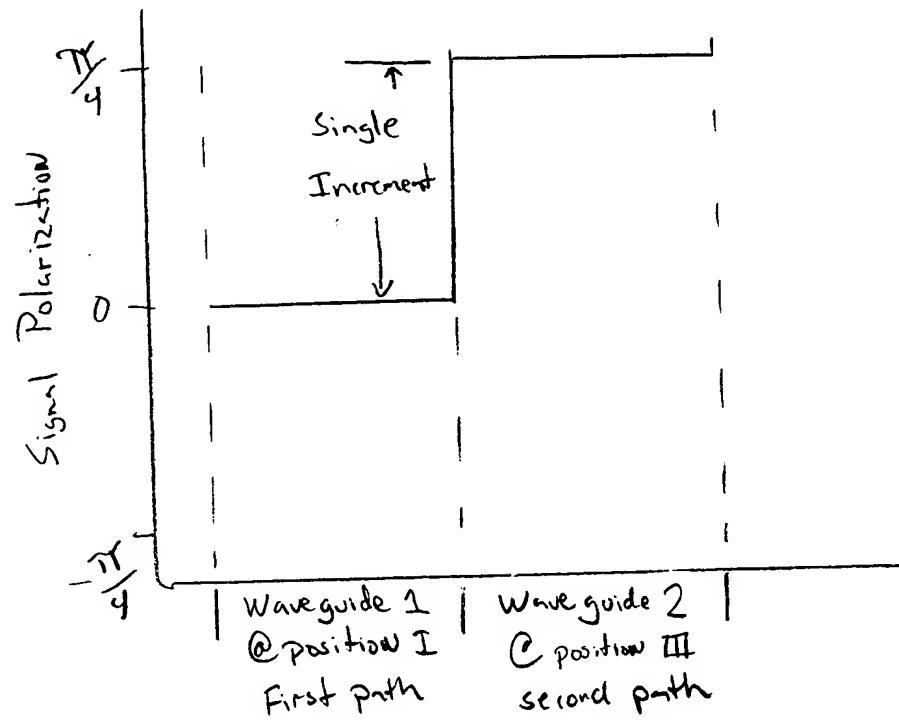
pivoted $\pm \alpha$ with respect to the cross section of the waveguide at position II or III." (column 2, lines 5-7) (emphasis added). The polarizations of the waveguide 1 is labeled as A, the polarizations of the waveguide 2, in position II is labeled as B, and in position III is labeled as C.



Perspective views for both possible positions I to II and I to III are also shown to further clarify the disclosure of Nuding.



As for the present invention described by claim 40, the following polarization charts demonstrate the rotation of the signals polarization from the first path to the second path.



It should be painfully evident from the above drawings, the specification of Nuding and the arguments here and in past responses, that in no way is the polarization of the signal from a first polarization (waveguide 1 @ position I, having a polarization of A) rotated in a plurality of increments to the second polarization (waveguide 2 which can only be at one position, position II or III, at a time, having a polarization of B or C respectively).

The examiner asserts Nuding discloses that the wave guide may be twisted or pivoted +/- alpha with respect to the cross section of the wave guide at positions II or III. This however is irrelevant. Since the claim language requires the signal be rotated in a plurality of increments between two polarizations. This feature is not satisfied by a wave guide capable of rotating the polarization of a signal one of a plurality of increments between +/- 45 degrees, as suggested by the Office Action. This is a salient distinction; it is the distinction akin to making multiple incremental rotations of signal's polarization vs. making a single rotation of the signal's polarization, the rotation being selected as one of many possible rotation magnitudes, as clearly illustrated above.

The applicant suggests the Office Action has for the second time clearly misapplied and misinterpreted the cited art. Nuding does not disclose each and every feature of independent claim 40 and thus the anticipation rejection should be withdrawn. Likewise the rejection of claims 41-53 should be withdrawn as they depend from claim 40, notwithstanding additional patentable features present therein.

Independent claim 54 recites *Inter alia* "...wherein a signal propagating has a first polarization in said first path and a second polarization in said second path, the improvement wherein the polarization of the signal is rotated in a plurality of increments." Thus, for the same reasons discussed in regards to claim 40, the rejection of claim 54 is improper and should be

withdrawn. Likewise the rejection of claims 55 and 56 should be withdrawn as they depend from claim 54.

Independent claim 57 recites *inter alia*, "...and a coupler configured for a third polarization, the improvement wherein said coupler is configured to effect substantially equal changes in the polarization of a signal propagating through said system at the junction of said first wave guide and said coupler and at the junction of said coupler and said second wave guide."

Nuding discloses one polarization change of the signal (a single increment as shown above), not a plurality of incremental polarization changes to the signal (as shown for an embodiment of claim 40). Therefore, changes in polarization at two junctions, much less equal changes, cannot be construed disclosed by Nuding. The rejection of claim 57 as being anticipated by Nuding remains improper and should be withdrawn.

Likewise, the rejection of claims 58 and 59 should also be withdrawn as they depend from Claim 57.

Independent claim 63 recites *inter alia* "rotating the polarization of the signal at the end of the first wave guide in a direction determined by the relative polarization difference between the first wave guide and the coupler; and, rotating the polarization of the signal at the beginning of the second wave guide in a direction determined by the relative polarization difference between the coupler and the second wave guide."

Nuding, as discussed and shown above in reference to claim 40, rotates the polarization of the signal once; therefore, in no way can Nuding disclose two rotating steps. Nuding discloses rotating the polarization determined by the relative polarization difference between the first wave guide (A shown above) and the second wave guide (B or C as shown above). Nuding

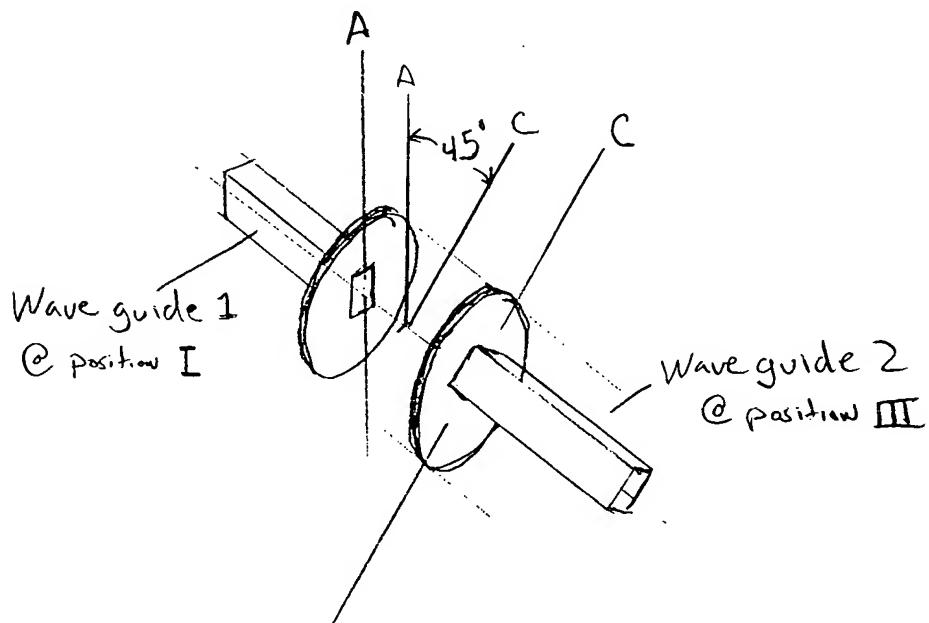
does not show a coupler configured for a third polarization , and therefore cannot disclose rotating the polarization of the signal (polarization H) at the end of the first wave guide (first signal path) in a direction determined by the relative polarization difference between (H-C) the first wave guide (H) and the coupler (the coupling means with a polarization of C) and rotating the polarization of the signal (C) at the beginning of the second wave guide in a direction determined by the relative polarization difference (C-V) between the coupler (C) and the second waveguide (second signal path having a polarization of V) Thus, the anticipation rejection of claim 63 for the second time improper and should be withdrawn.

Independent claims 64 and 65 recite *inter alia* “ rotating the polarization of the signal at the end of the first wave guide in a first direction and rotating the polarization of the signal at the beginning of the second [first] wave guide the same amount and in the same direction [or different direction for claim 65]”.

Again Nuding rotates the polarization of the signal once. Thus, a method with more than one polarization rotation can not be disclosed. Thus, the anticipation rejections of claims 64 and 65 are improper and should be withdrawn.

Independent claim 66 recites *inter alia* “ the step of coupling the antenna to the wave guide through a coupler configured for a single polarization different from both of the two polarizations.”

Nuding does not disclose a coupler configured for a signal polarization different from both of the two polarizations. As shown in the drawing reproduced from above, in Nuding there are but two polarizations, the first wave guide polarization and the second wave guide polarization, while the second wave guide may have two possible polarizations, it can only have one second polarization at a time.



For a single polarization to be different from the two polarization would require a third polarization that does not exist in Nuding. Thus the anticipation rejection of Claim 66 is improper and should be withdrawn. Likewise the rejection of Claim 67 which depends from claim 66 is still improper and should be withdrawn, irrespective of its additional patentable features.

Independent claim 83 recites *inter alia* “passing a signal from an input wave guide to an output wave guide through a polarization plate.” The Office Action admits (on page 3, line 22) that “**No polarization plate appears to be taught**”, yet in responding to the Applicant arguments asserts that the flanges at the end of waveguides 1 and 2 “suffice for the plate recited in claim 83”. The examiner can call the flanges a polarization plate, which the Applicants still contests, but regardless of this contention, Nuding still does not disclose the claim features.

Claim 83 further recites “modifying the polarization of a signal passing through the polarization plate by a predetermined angle in either a clock wise or counter clockwise direction to thereby provide a rotated polarization signal”. Since the polarization of the signals passing through the flanges is the same as the polarization of the signal passing through the respective wave guides in Nuding the subsequent limitation in claim 83 can not be met mainly “modifying the polarization of the rotated polarization signal passing through the polarization plate by the same predetermined angle in the direct required to achieve the desired polarization of the signal in the output wave guide” since only one rotation is performed by Nuding as described previously. For these reasons and others related to the discussion above, the rejection of Claim 83 as being anticipated by Nuding was and is improper and should be withdrawn. Likewise, the rejections of claim 84-86 are improper and should be withdrawn as they depend from claim 83 irrespective of their additional patentable features.

The rejection to claim 88 remains improper and should be withdrawn for the same reasons elaborated in regards to the rejection of Claim 63.

Rejection under 35 U.S.C. §103(a).

As noted before the previous Office Action acknowledges that “No polarization plate

appears to be taught" in Nuding, and thus, the previous Office Action used Seavey to provide the polarization plate for an obviousness rejection of claim 68-78, 81, 82 and 87.

However, while the rejection language in the present Office Action baldly repeats verbatim the rejection of the previous Office Action, the examiner has stated in response to the applicant arguments that "the Seavey reference is cited to resolve the level of ordinary skill in the antenna are and as evidence of obviousness." It is unclear if the Applicants are to assume a rejection is based on what the examiner writes, or rather what the examiner said he wrote. The contradiction is not a product of the Applicants imagination, and should be addressed.

While the written rejection to claims 68-78, 81, 82 and 87 are adequately addressed with respect to the above discussions and in detail in the previous response dated August 14, 2002, the contents of which are reasserted herein. The applicant is directed to address the rejection in view of the examiners statement in response to Applicant arguments.

The examiner seems to suggest that it would have been obvious to replace the flanges of Nuding with a polarization plate, since Seavey shows the use of a polarization plate. The applicants do not concede this assertion, as it remains irrelevant to rendering the claims of the current invention obvious.

Even if the teachings, above were combined to provide Nuding with a polarization plate in place of the flanges, the resultant combination would not render the claims obvious.

Independent claim 68 recited *inter alia* "...said slot is oriented so as to be rotationally offset, ... from the orientation of the first passage and the orientation of the second passage". The flanges of Nuding have the same polarization as the waveguides, therefore the modification of Nuding as proposed by the examiner (for argument sake only) would result in a polarization plate with a slot offset from one waveguide but concurrent and oriented with the other, as taught

by the flanges of Nuding. Therefore, the combination does not render obvious the recited limitation or claim 68. The rejection is improper.

Therefore, the rejection of claim 68 should be withdrawn. Likewise the rejections of claims 69-78, 81 and 82 should be withdrawn as these claims depend from claim 68, irrespective of their additional patentable features.

Independent claim 87 recites *inter alia* “... the step of passing the signal through a polarization plate which effects two successive forty five degree rotations of the polarization of the signal”.

The asserted combination of Nuding and Seavey fails to disclose “two successive forty five degree rotations” as painfully discussed in reference to the rejections of claims 63-65. Therefore, the rejection of claim 87 is improper for failing to show, teach or suggest every feature of the claim. The rejection should be withdrawn.

Claim Objections

Claims 79 and 80 are believed to depend from allowable base claims for the reasons above and thus should be allowable.

CONCLUSION

The examiner has again substantively misread the cited patents and the present claims. The rejections were improper the first time they were presented and are just as improper this time. The examiner has contradicted himself within the Office Action, which places a great burden on the Applicant in responding. The applicant has presented detailed discussions of the claim language and the prior art, and presented arguments against the twice asserted rejections. Simply put two wave guides capable of being selectively oriented to each other does not read on

the claims specifying changing the polarization of the signal passing from one path to another path by a plurality of increments. All the present claims are allowable over the cited art. The removal of the improper rejections and allowance of the application is accordingly solicited.

Respectfully submitted,



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